

REMARKS

The present Amendment amends claims 1, 5-7, 9 and 10 and leaves claims 4 and 8 unchanged. Therefore, the present application has pending claims 1 and 4-10.

35 U.S.C. §101 Rejections

Claims 9 and 10 stand rejected under 35 U.S.C. §101 as allegedly being directed to non-statutory subject matter. Claims 9 and 10 are directed to a type of manufacture. More specifically, as now more clearly recited, are directed to a machine readable medium that tangibly embodies at least one sequence of instruction for calculating load data in an information processing system. Consistent with any explicit and deliberate definitions in the specification, the manufacture of the present invention necessarily includes hardware, and accordingly is tangible. Furthermore, the manufacture of the present invention is limited to tangible mediums. Accordingly, claims 9 and 10 are directed to statutory subject matter.

35 U.S.C. §103 Rejections

Claims 1 and 4-10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application Publication No. 2004/0003087 to Chambliss et al. ("Chambliss") in view of U.S. Patent Application Publication No. 2004/0054782 to Donze et al ("Donze") and further in view of U.S. Patent No. 6,957,429 to Sekijima et al. ("Sekijima"). This rejection is traversed for the following reasons. Applicants submit that the features of the present invention, as now more clearly recited in claims 1 and 4-10, are not taught or suggested by Chambliss, Donze or Sekijima, whether taken individually or in combination with each other in the manner suggested by the Examiner. Therefore, Applicants

respectfully request the Examiner to reconsider and withdraw this rejection.

Amendments were made to the claims to more clearly describe features of the present invention. Specifically, amendments were made to the claims to more clearly recite that the present invention is directed to an information processing system, a control method of an information processing system, and a program to calculate load data in an information processing system as recited, for example, in independent claims 1, 5-7 and 9.

Claims 1 and 4

The present invention, as recited in claim 1, provides an information processing system. The information processing system includes an information processing apparatus which is used to operate a plurality of applications to request data input or output to or from a storage, and a management host which manages the storage. According to the present invention, the storage includes at least one port and at least one array group including a plurality of disk units. The information processing apparatus accesses, via the at least one port, a virtual area provided by the at least one array group. Also according to the present invention, the storage and the information processing apparatus constitute an access process section for processing an access request from an application. The access process section includes the at least one port and the at least one array group. Also according to the present invention, the information processing apparatus includes an access monitoring section which monitors an access request from the application and obtains information about the access request for each of the applications. The management host includes an acceptance section which accepts specification of a new application. The management host also includes a current load calculation section which calculates current amount of data accessed

from the application to the storage for each of the applications based on information obtained by the access monitoring section. The management host further includes an estimated load calculation section which calculates each of an estimated amount of data accessed from the application to the storage in the port and an estimated amount of data in the array group, in case of addition of the new application based on current amount of data calculated by the current load calculation section and based on information obtained by the access monitoring section. According to the present invention, in case there is no current amount of data available to the application whose estimated amount of data needs to be calculated, the estimated load calculation section calculates the estimated amount of data by using a current amount of data of the application having an approximate current amount of data. The management host also includes a load data output section which outputs each of an estimated amount of data in the port and an estimated amount of data in the array group calculated by the estimated load calculation section. According to the present invention, in case the information processing apparatus accesses, via a specific port, the virtual area provided by the array group corresponding to the specific port, the load data output section outputs a combination of available ports and array groups. The prior art does not teach or suggest all of these features.

The above described features of the present invention, as now more clearly recited in the claims, are not taught or suggested by any of the references of record. Specifically, the features are not taught or suggested by either Chambliss, Donze or Sekimima, whether taken individually or in combination with each other.

Chambliss teaches a method for improving performance in a computer storage system by regulating resource requests from clients. However, there is no

teaching or suggestion in Chambliss of the information processing system as recited in claim 1 of the present invention.

Chambliss discloses a method and system for optimizing the performance of a storage system by classifying each client request for resources based on operational limits of the resources and controlling when to submit the request for processing based on service class. The operational limits are determined from performance characteristics of the system resources and from the level of performance guaranteed to each client. By regulating the clients' usage of resources using the resource operational limits, total system performance requirements and guarantees can be achieved.

One feature of the present invention, as recited in claim 1, includes an estimated load calculation section which calculates each of an estimated amount of data accessed from the application to the storage in the port and an estimated amount of data in the array group, in case of addition of the new application based on current amount of data calculated by the current load calculation section and based on information obtained by the access monitoring section. According to the present invention, in case there is no current amount of data available to the application whose estimated amount of data needs to be calculated, the estimated load calculation section calculates the estimated amount of data by using a current amount of data of the application having an approximate current amount of data. Chambliss does not disclose this feature.

The Examiner relies upon Chambliss for teaching an estimated load calculation section that calculates an estimated amount of data in the array group, in case of addition of the new application based on current amount of data calculated by the current load calculation section and based on information

obtained by the said access monitoring section (citing paragraphs [0063]-[0071], [0075], and [0082]-[0083]. However, neither the cited text, nor any other portion of Chambliss, teaches the claimed feature, where in case there is no current amount of data available to the application whose estimated amount of data needs to be calculated, the estimated load calculation section calculates the estimated amount of data by using a current amount of data of the application having an approximate current amount of data, as in the present invention.

Another feature of the present invention, as recited in claim 1, includes a load data output section which outputs each of an estimated amount of data in the port and an estimated amount of data in the array group calculated by the estimated load calculation section. According to the present invention, in case the information processing apparatus accesses, via a specific port, the virtual area provided by the array group corresponding to the specific port, the load data output section outputs a combination of available ports and array groups. Chambliss does not disclose this feature, and the Examiner does not rely upon Chambliss for teaching a load data output section. Applicants further submit that Chambliss does not teach or suggest the load data output section where in case the information processing apparatus accesses, via a specific port, the virtual area provided by the array group corresponding to the specific port, the load data output section outputs a combination of available ports and array groups, as in the present invention.

Therefore, Chambliss fails to teach or suggest “an estimated load calculation section which calculates each of an estimated amount of data accessed from said application to said storage in said port and an estimated amount of data in said array group, in case of addition of said new application”

based on current amount of data calculated by said current load calculation section and based on information obtained by said access monitoring section, wherein in case there is no current amount of data available to said application whose estimated amount of data needs to be calculated, said estimated load calculation section calculates the estimated amount of data by using a current amount of data of said application having an approximate current amount of data" as recited in claim 1.

Furthermore, Chambliss fails to teach or suggest "a load data output section which outputs each of the estimated amount of data in said port and the estimated amount of data in said array group calculated by said estimated load calculation section, wherein in case said information processing apparatus accesses, via a specific port, said virtual area provided by said array group corresponding to said specific port, said load data output section outputs a combination of available ports and array groups" as recited in claim 1.

The above noted deficiencies of Chambliss are not supplied by any of the other references of record, namely Donze, whether taken individually or in combination with each other. Therefore, combining the teachings of Chambliss and Donze in the manner suggested by the Examiner still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

Donze teaches a software application domain and storage domain stitching process and method. However, there is no teaching or suggestion in Donze of the information processing system as recited in claim 1 of the present invention.

Donze discloses a method for mapping data path connections. The method includes accessing information representing a data path between a software application and a storage system, where the information is collected from the

software application by an agent. The method also includes accessing information representing the data path between the storage system and the software application, where a portion of the information is collected from the storage system by an agent. The method also includes determining connections associated with the data path, and mapping the data path connections to form a connection map.

One feature of the present invention, as recited in claim 1, includes an estimated load calculation section which calculates each of an estimated amount of data accessed from the application to the storage in the port and an estimated amount of data in the array group, in case of addition of the new application based on current amount of data calculated by the current load calculation section and based on information obtained by the access monitoring section. According to the present invention, in case there is no current amount of data available to the application whose estimated amount of data needs to be calculated, the estimated load calculation section calculates the estimated amount of data by using a current amount of data of the application having an approximate current amount of data. Donze does not disclose this feature.

The Examiner relies upon Donze for teaching an estimated load calculation section that calculates each of an estimated amount of data accessed from the application to the storage in the port (citing paragraphs [0054] and [0062]). However, neither the cited text, nor any other portion of Donze, teaches the claimed feature, where in case there is no current amount of data available to the application whose estimated amount of data needs to be calculated, the estimated load calculation section calculates the estimated amount of data by using a current amount of data of the application having an approximate current amount of data, as in the present invention.

Another feature of the present invention, as recited in claim 1, includes a load data output section which outputs each of an estimated amount of data in the port and an estimated amount of data in the array group calculated by the estimated load calculation section. According to the present invention, in case the information processing apparatus accesses, via a specific port, the virtual area provided by the array group corresponding to the specific port, the load data output section outputs a combination of available ports and array groups. Donze does not disclose this feature.

The Examiner relies upon Donze for teaching a load data output section which outputs each of an estimated amount of data in the port, citing paragraphs [0055]-[0066]. However, neither the cited text nor any other portion of Donze teaches or suggests the claimed feature, further including where in case the information processing apparatus accesses, via a specific port, the virtual area provided by the array group corresponding to the specific port, the load data output section outputs a combination of available ports and array groups, as in the present invention.

Therefore, Donze fails to teach or suggest "an estimated load calculation section which calculates each of an estimated amount of data accessed from said application to said storage in said port and an estimated amount of data in said array group, in case of addition of said new application based on current amount of data calculated by said current load calculation section and based on information obtained by said access monitoring section, wherein in case there is no current amount of data available to said application whose estimated amount of data needs to be calculated, said estimated load calculation section calculates the estimated amount of data by using a current amount of data of said application"

having an approximate current amount of data" as recited in claim 1.

Furthermore, Donze fails to teach or suggest "a load data output section which outputs each of the estimated amount of data in said port and the estimated amount of data in said array group calculated by said estimated load calculation section, wherein in case said information processing apparatus accesses, via a specific port, said virtual area provided by said array group corresponding to said specific port, said load data output section outputs a combination of available ports and array groups" as recited in claim 1.

The above noted deficiencies of Chambliss in view of Donze are not supplied by any of the other references of record, namely Sekijima, whether taken individually or in combination with each other. Therefore, combining the teachings of Chambliss, Donze and Sekijima in the manner suggested by the Examiner still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

Sekijima teaches a service processing apparatus and a service execution control method. However, there is no teaching or suggestion in Sekijima of the information processing system as recited in claim 1 of the present invention.

Sekijima discloses an apparatus and method that presents a list of applicable services dynamically updated and enables users to specify selective combinations of the services. A client includes an input unit, a display unit, a user authentication unit, a service display and selection unit, a document set display and display unit, and the like. The service display and selection unit creates a list of currently active, applicable services and performs processing for user's service selection. The document set display and selection unit creates a list of documents included in a document set specified by a user and performs processing for user's

document selection. In the servers, a service management unit, a selected service execution unit, service providing units, a document information management unit, a document storage unit, and a user information management unit operate respectively.

One feature of the present invention, as recited in claim 1, includes an estimated load calculation section which calculates each of an estimated amount of data accessed from the application to the storage in the port and an estimated amount of data in the array group, in case of addition of the new application based on current amount of data calculated by the current load calculation section and based on information obtained by the access monitoring section. According to the present invention, in case there is no current amount of data available to the application whose estimated amount of data needs to be calculated, the estimated load calculation section calculates the estimated amount of data by using a current amount of data of the application having an approximate current amount of data. Sekijima does not disclose this feature, and the Examiner does not rely upon Sekijima for teaching an estimated load calculation section.

Another feature of the present invention, as recited in claim 1, includes a load data output section which outputs each of an estimated amount of data in the port and an estimated amount of data in the array group calculated by the estimated load calculation section. According to the present invention, in case the information processing apparatus accesses, via a specific port, the virtual area provided by the array group corresponding to the specific port, the load data output section outputs a combination of available ports and array groups. Sekijima does not disclose this feature.

The Examiner relies upon Sekijima for teaching a load data output section

where the estimated amount of data in the array group is calculated by the estimated load calculation section, citing column 3, lines 53-59. However, Applicants submit that neither the cited text, nor any other portion of Sekijima, teaches or suggests the claimed feature, and where in case the information processing apparatus accesses, via a specific port, the virtual area provided by the array group corresponding to the specific port, the load data output section outputs a combination of available ports and array groups, as in the present invention.

Therefore, Sekijima fails to teach or suggest "an estimated load calculation section which calculates each of an estimated amount of data accessed from said application to said storage in said port and an estimated amount of data in said array group, in case of addition of said new application based on current amount of data calculated by said current load calculation section and based on information obtained by said access monitoring section, wherein in case there is no current amount of data available to said application whose estimated amount of data needs to be calculated, said estimated load calculation section calculates the estimated amount of data by using a current amount of data of said application having an approximate current amount of data" as recited in claim 1.

Furthermore, Sekijima fails to teach or suggest "a load data output section which outputs each of the estimated amount of data in said port and the estimated amount of data in said array group calculated by said estimated load calculation section, wherein in case said information processing apparatus accesses, via a specific port, said virtual area provided by said array group corresponding to said specific port, said load data output section outputs a combination of available ports and array groups" as recited in claim 1.

Claims 5 and 6

The present invention, as recited in claim 5, and as similarly recited in claim 6, provides an information processing system. The information processing system includes a storage which stores a database and includes at least one port and at least one array group including a plurality of disk units. The information processing system also includes a plurality of information processing apparatuses which are used to operate an application requesting data input/output to/from the storage and access, via the at least one port, a virtual area provided by the at least one array group. The information processing system further includes a management host which manages the storage. According to the present invention, each of the information processing apparatuses includes a database management system which processes an access request from the application to the database and includes the at least one port and the at least one array group. The information processing apparatus also includes an access monitoring section which monitors an access request sent from the application to the database management system and obtains information about the access request. The information processing system further includes an access information output section which collects information about the access request and adds up the information correspondingly to the application. Also according to the present invention, the management host includes an acceptance section which accepts specification of a new application. The management host also includes a current load calculation section which calculates current amount of data accessed from the application to the storage for each of the applications based on information obtained by the access monitoring section. The management host further includes an estimated load calculation section which calculates each of an estimated amount of data accessed from the

application to the storage in the port and an estimated amount of data in the array group, calculated by the current load calculation section and based on information obtained by the access monitoring section. According to the present invention, in case there is no current amount of data available to the application whose estimated amount of data needs to be calculated, the estimated load calculation section calculates the estimated amount of data by using a current amount of data of the application having an approximate current amount of data. The management host also includes a load data output section which outputs each of estimated amount of data in the port and estimated amount of data in the array group calculated by the estimated load calculation section. According to the present invention, in case the information processing apparatus accesses, via a specific port, the virtual area provided by the array group corresponding to the specific port, the load data output section outputs a combination of available ports and array groups. Furthermore, the management host includes a configuration setup section which sets up a change in configuration of the storage based on the estimated amount of data calculated by the estimated load calculation section. The prior art does not teach or suggest all of these features.

The above described features of the present invention, as now more clearly recited in the claims, are not taught or suggested by any of the references of record. Specifically, the features are not taught or suggested by either of Chambliss, Donze or Sekijima, whether taken individually or in combination with each other.

As previously discussed, Chambliss teaches a method for improving performance in a computer storage system by regulating resource requests from clients. However, there is no teaching or suggestion in Chambliss of the

information processing system as recited in claims 5 and 6 of the present invention.

One feature of the present invention, as recited in claim 5, and as similarly recited in claim 6, includes an estimated load calculation section which calculates each of an estimated amount of data accessed from the application to the storage in the port and an estimated amount of data in the array group, calculated by the current load calculation section and based on information obtained by the access monitoring section. According to the present invention, in case there is no current amount of data available to the application whose estimated amount of data needs to be calculated, the estimated load calculation section calculates the estimated amount of data by using a current amount of data of the application having an approximate current amount of data. Chambliss does not disclose this feature.

The Examiner relies upon Chambliss for teaching an estimated load calculation section that calculates an estimated amount of data in the array group, in case of addition of the new application based on current amount of data calculated by the current load calculation section and based on information obtained by the said access monitoring section (citing paragraphs [0063]-[0071], [0075], and [0082]-[0083]. However, neither the cited text, nor any other portion of Chambliss, teaches the claimed feature, where in case there is no current amount of data available to the application whose estimated amount of data needs to be calculated, the estimated load calculation section calculates the estimated amount of data by using a current amount of data of the application having an approximate current amount of data, as in the present invention.

Another feature of the present invention, as recited in claim 5, and as similarly recited in claim 6, includes a load data output section which outputs each

of estimated amount of data in the port and estimated amount of data in the array group calculated by the estimated load calculation section. According to the present invention, in case the information processing apparatus accesses, via a specific port, the virtual area provided by the array group corresponding to the specific port, the load data output section outputs a combination of available ports and array groups. Chambliss does not disclose this feature, and the Examiner does not rely upon Chambliss for teaching a load data output section. Applicants further submit that Chambliss does not teach or suggest the load data output section where in case the information processing apparatus accesses, via a specific port, the virtual area provided by the array group corresponding to the specific port, the load data output section outputs a combination of available ports and array groups, as in the present invention.

Therefore, Chambliss fails to teach or suggest "an estimated load calculation section which calculates each of an estimated amount of data accessed from said application to said storage in said port and an estimated amount of data in said array group, calculated by said current load calculation section and based on information obtained by said access monitoring section, wherein in case there is no current amount of data available to said application whose estimated amount of data needs to be calculated, said estimated load calculation section calculates the estimated amount of data by using current amount of data of said application having an approximate current amount of data" as recited in claim 5, and as similarly recited in claim 6.

Furthermore, Chambliss fails to teach or suggest "a load data output section which outputs each of the estimated amount of data in said port and the estimated amount of data in said array group calculated by said estimated load calculation"

section, wherein in case said information processing apparatus accesses, via a specific port, said virtual area provided by said array group corresponding to said specific port, said load data output section outputs a combination of available ports and array groups" as recited in claim 5, and as similarly recited in claim 6.

The above noted deficiencies of Chambliss are not supplied by any of the other references of record, namely Donze, whether taken individually or in combination with each other. Therefore, combining the teachings of Chambliss and Donze in the manner suggested by the Examiner still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

As previously discussed, Donze teaches a software application domain and storage domain stitching process and method. However, there is no teaching or suggestion in Donze of the information processing system as recited in claims 5 and 6 of the present invention.

One feature of the present invention, as recited in claim 5, and as similarly recited in claim 6, includes an estimated load calculation section which calculates each of an estimated amount of data accessed from the application to the storage in the port and an estimated amount of data in the array group, calculated by the current load calculation section and based on information obtained by the access monitoring section. According to the present invention, in case there is no current amount of data available to the application whose estimated amount of data needs to be calculated, the estimated load calculation section calculates the estimated amount of data by using a current amount of data of the application having an approximate current amount of data. Donze does not disclose this feature.

The Examiner relies upon Donze for teaching an estimated load calculation section that calculates each of an estimated amount of data accessed from the

application to the storage in the port (citing paragraphs [0054] and [0062]). However, neither the cited text, nor any other portion of Donze, teaches the claimed feature, where in case there is no current amount of data available to the application whose estimated amount of data needs to be calculated, the estimated load calculation section calculates the estimated amount of data by using a current amount of data of the application having an approximate current amount of data, as in the present invention.

Another feature of the present invention, as recited in claim 5, and as similarly recited in claim 6, includes a load data output section which outputs each of estimated amount of data in the port and estimated amount of data in the array group calculated by the estimated load calculation section. According to the present invention, in case the information processing apparatus accesses, via a specific port, the virtual area provided by the array group corresponding to the specific port, the load data output section outputs a combination of available ports and array groups. Donze does not disclose this feature.

The Examiner relies upon Donze for teaching a load data output section which outputs each of an estimated amount of data in the port, citing paragraphs [0055]-[0066]. However, neither the cited text nor any other portion of Donze teaches or suggests the claimed feature, further including where in case the information processing apparatus accesses, via a specific port, the virtual area provided by the array group corresponding to the specific port, the load data output section outputs a combination of available ports and array groups, as in the present invention.

Therefore, Donze fails to teach or suggest “an estimated load calculation section which calculates each of an estimated amount of data accessed from said

application to said storage in said port and an estimated amount of data in said array group, calculated by said current load calculation section and based on information obtained by said access monitoring section, wherein in case there is no current amount of data available to said application whose estimated amount of data needs to be calculated, said estimated load calculation section calculates the estimated amount of data by using current amount of data of said application having an approximate current amount of data” as recited in claim 5, and as similarly recited in claim 6.

Furthermore, Donze fails to teach or suggest “a load data output section which outputs each of the estimated amount of data in said port and the estimated amount of data in said array group calculated by said estimated load calculation section, wherein in case said information processing apparatus accesses, via a specific port, said virtual area provided by said array group corresponding to said specific port, said load data output section outputs a combination of available ports and array groups” as recited in claim 5, and as similarly recited in claim 6.

The above noted deficiencies of Chambliss in view of Donze are not supplied by any of the other references of record, namely Sekijima, whether taken individually or in combination with each other. Therefore, combining the teachings of Chambliss, Donze and Sekijima in the manner suggested by the Examiner still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

As previously discussed, Sekijima teaches a service processing apparatus and a service execution control method. However, there is no teaching or suggestion in Sekijima of the information processing system as recited in claims 5 and 6 of the present invention.

One feature of the present invention, as recited in claim 5, and as similarly recited in claim 6, includes an estimated load calculation section which calculates each of an estimated amount of data accessed from the application to the storage in the port and an estimated amount of data in the array group, calculated by the current load calculation section and based on information obtained by the access monitoring section. According to the present invention, in case there is no current amount of data available to the application whose estimated amount of data needs to be calculated, the estimated load calculation section calculates the estimated amount of data by using a current amount of data of the application having an approximate current amount of data. Sekijima does not disclose this feature, and the Examiner does not rely upon Sekijima for teaching an estimated load calculation section.

Another feature of the present invention, as recited in claim 5, and as similarly recited in claim 6, includes a load data output section which outputs each of estimated amount of data in the port and estimated amount of data in the array group calculated by the estimated load calculation section. According to the present invention, in case the information processing apparatus accesses, via a specific port, the virtual area provided by the array group corresponding to the specific port, the load data output section outputs a combination of available ports and array groups. Sekijima does not disclose this feature.

The Examiner relies upon Sekijima for teaching a load data output section where the estimated amount of data in the array group is calculated by the estimated load calculation section, citing column 3, lines 53-59. However, Applicants submit that neither the cited text, nor any other portion of Sekijima, teaches or suggests the claimed feature, and where in case the information

processing apparatus accesses, via a specific port, the virtual area provided by the array group corresponding to the specific port, the load data output section outputs a combination of available ports and array groups, as in the present invention.

Therefore, Sekijima fails to teach or suggest "an estimated load calculation section which calculates each of an estimated amount of data accessed from said application to said storage in said port and an estimated amount of data in said array group, calculated by said current load calculation section and based on information obtained by said access monitoring section, wherein in case there is no current amount of data available to said application whose estimated amount of data needs to be calculated, said estimated load calculation section calculates the estimated amount of data by using current amount of data of said application having an approximate current amount of data" as recited in claim 5, and as similarly recited in claim 6.

Furthermore, Sekijima fails to teach or suggest "a load data output section which outputs each of the estimated amount of data in said port and the estimated amount of data in said array group calculated by said estimated load calculation section, wherein in case said information processing apparatus accesses, via a specific port, said virtual area provided by said array group corresponding to said specific port, said load data output section outputs a combination of available ports and array groups" as recited in claim 5, and as similarly recited in claim 6.

Claims 7 and 8

The present invention, as recited in claim 7, provides a control method of an information processing system, where the system includes an information processing apparatus, which is used to operate a plurality of applications to

request data input or output to or from a storage, and a management host that manages the storage. According to the present invention, the storage includes at least one port and at least one array group including a plurality of disk units. Also according to the present invention, the information processing apparatus accesses, via the at least one port, a virtual area provided by the at least one array group. The method includes steps of monitoring an access request from each of the applications, and obtaining information about the access request for each of the applications. The method also includes calculating current amount of data accessed from each of the applications to the storage for each of the applications, in case of addition of the new application based on information about the obtained access request. The method further includes accepting specification of a new application, and calculating an estimated amount of data accessed from each of the applications to the storage for each of the applications, in case of addition of the new application based on information about the obtained access request. Another step includes calculating each of an estimated amount of data in the port and an estimated amount of data in the array group in case of addition of the new application based on the calculated current data and information about the obtained access request. Also included in the method is a step of calculating the estimated amount of data by using a current amount of data of the application having an approximate current amount of data, in case there is no current amount of data available to the application whose estimated amount of data needs to be calculated. The method also includes a step of outputting the calculated each of the estimated amount of data in the port and the estimated amount of data in array group. Furthermore, the method includes outputting a combination of available ports and array groups, in case the information processing apparatus accesses,

via a specific port, the virtual area provided by an array group corresponding to the specific port. The prior art does not teach or suggest all of these features.

The above described features of the present invention, as now more clearly recited in the claims, are not taught or suggested by any of the references of record. Specifically, the features are not taught or suggested by either Chambliss, Donze or Sekijima, whether taken individually or in combination with each other.

As previously discussed, Chambliss teaches a method for improving performance in a computer storage system by regulating resource requests from clients. However, there is no teaching or suggestion in Chambliss of the control method of an information processing system, as recited in claim 7 of the present invention.

One feature of the present invention, as recited in claim 7, includes calculating the estimated amount of data by using a current amount of data of the application having an approximate current amount of data, in case there is no current amount of data available to the application whose estimated amount of data needs to be calculated. As previously discussed, Chambliss does not disclose this feature.

Another feature of the present invention, as recited in claim 7, includes outputting a combination of available ports and array groups, in case the information processing apparatus accesses, via a specific port, the virtual area provided by an array group corresponding to the specific port. As previously discussed, Chambliss does not disclose this feature.

Therefore, Chambliss fails to teach or suggest “calculating the estimated amount of data by using a current amount of data of said application having an approximate current amount of data, in case there is no current amount of data”

available to said application whose estimated amount of data needs to be calculated" as recited in claim 7.

Furthermore, Chambliss fails to teach or suggest "outputting a combination of available ports and array groups, in case said information processing apparatus accesses, via a specific port, said virtual area provided by an array group corresponding to said specific port" as recited in claim 7.

The above noted deficiencies of Chambliss are not supplied by any of the other references of record, namely Donze, whether taken individually or in combination with each other. Therefore, combining the teachings of Chambliss and Donze in the manner suggested by the Examiner still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

As previously discussed, Donze teaches a software application domain and storage domain stitching process and method. However, there is no teaching or suggestion in Donze of the control method of an information processing system, as recited in claim 7 of the present invention.

One feature of the present invention, as recited in claim 7, includes calculating the estimated amount of data by using a current amount of data of the application having an approximate current amount of data, in case there is no current amount of data available to the application whose estimated amount of data needs to be calculated. As previously discussed, Donze does not disclose this feature.

Another feature of the present invention, as recited in claim 7, includes outputting a combination of available ports and array groups, in case the information processing apparatus accesses, via a specific port, the virtual area provided by an array group corresponding to the specific port. As previously

discussed, Donze does not disclose this feature.

Therefore, Donze fails to teach or suggest “calculating the estimated amount of data by using a current amount of data of said application having an approximate current amount of data, in case there is no current amount of data available to said application whose estimated amount of data needs to be calculated” as recited in claim 7.

Furthermore, Donze fails to teach or suggest “outputting a combination of available ports and array groups, in case said information processing apparatus accesses, via a specific port, said virtual area provided by an array group corresponding to said specific port” as recited in claim 7.

The above noted deficiencies of Chambliss in view of Donze are not supplied by any of the other references of record, namely Sekijima, whether taken individually or in combination with each other. Therefore, combining the teachings of Chambliss, Donze and Sekijima in the manner suggested by the Examiner still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

As previously discussed, Sekijima teaches a service processing apparatus and a service execution control method. However, there is no teaching or suggestion in Sekijima of the control method of an information processing system, as recited in claim 7 of the present invention.

One feature of the present invention, as recited in claim 7, includes calculating the estimated amount of data by using a current amount of data of the application having an approximate current amount of data, in case there is no current amount of data available to the application whose estimated amount of data needs to be calculated. As previously discussed, Sekijima does not disclose

this feature.

Another feature of the present invention, as recited in claim 7, includes outputting a combination of available ports and array groups, in case the information processing apparatus accesses, via a specific port, the virtual area provided by an array group corresponding to the specific port. As previously discussed, Sekijima does not disclose this feature.

Therefore, Sekijima fails to teach or suggest “calculating the estimated amount of data by using a current amount of data of said application having an approximate current amount of data, in case there is no current amount of data available to said application whose estimated amount of data needs to be calculated” as recited in claim 7.

Furthermore, Sekijima fails to teach or suggest “outputting a combination of available ports and array groups, in case said information processing apparatus accesses, via a specific port, said virtual area provided by an array group corresponding to said specific port” as recited in claim 7.

Claims 9 and 10

The present invention, as recited in claim 9, provides a machine readable medium tangibly embodying at least one sequence of instruction for calculating load data in an information processing system. The system includes an information processing apparatus, which is used to operate a plurality of applications to request data input or output to or from a storage, and a management host which manages the storage. The storage includes at least one port and at least one array group including a plurality of disk units. The information processing apparatus accesses, via the at least one port, a virtual area provided

by the at least one array group. According to the present invention, the sequence of instruction, when executed, causes the management host to monitor an access request from the application and obtaining information about the access request for each of the applications. The sequence of instruction also causes the management host to calculate current amount of data accessed from the application to the storage for each of the applications based on information about the obtained access request. Also, the sequence of instruction causes the management host to accept specification of a new application. Furthermore, the sequence of instruction causes the management host to calculate an estimated amount of data accessed from the application to the storage for each of the applications, in case of addition of the new application based on information about the obtained access request. In addition, in the present invention, the sequence of instruction causes the management host to calculate the estimated amount of data by using a current amount of data of the application having an approximate current amount of data, in case there is no current amount of data available to the application whose estimated amount of data needs to be calculated. Furthermore, the sequence of instruction causes the management host to calculate each of an estimated amount of data in the port and an estimated amount of data in the array group in case of addition of the new application based on the calculated current amount of data and information about the obtained access request. Even further, the sequence of instruction causes the management host to output the calculated estimated amount of data in the port and the estimated amount of data in the array group. Also in the present invention, the sequence of instruction causes the management host to output a combination of available ports and array groups, in case the information processing apparatus accesses, via a specific port, the virtual

area provided by an array group corresponding to the specific port. The prior art does not teach or suggest all of these features.

The above described features of the present invention, as now more clearly recited in the claims, are not taught or suggested by any of the references of record. Specifically, the features are not taught or suggested by either Chambliss or Sekijima, whether taken individually or in combination with each other.

As previously discussed, Chambliss teaches a method for improving performance in a computer storage system by regulating resource requests from clients. However, there is no teaching or suggestion in Chambliss of the machine readable medium tangibly embodying at least one sequence of instruction for calculating load data in an information processing system as recited in claim 9 of the present invention.

One feature of the present invention, as recited in claim 9, includes where the sequence of instruction causes the management host to calculate the estimated amount of data by using a current amount of data of the application having an approximate current amount of data, in case there is no current amount of data available to the application whose estimated amount of data needs to be calculated. As previously discussed, Chambliss does not disclose this feature.

Another feature of the present invention, as recited in claim Chambliss, includes where the sequence of instruction causes the management host to output a combination of available ports and array groups, in case the information processing apparatus accesses, via a specific port, the virtual area provided by an array group corresponding to the specific port. As previously discussed, Chambliss does not disclose this feature.

Therefore, Chambliss fails to teach or suggest "calculate the estimated

amount of data by using a current amount of data of said application having an approximate current amount of data, in case there is no current amount of data available to said application whose estimated amount of data needs to be calculated" as recited in claim 9.

Furthermore, Chambliss fails to teach or suggest "output a combination of available ports and array groups, in case said information processing apparatus accesses, via a specific port, said virtual area provided by an array group corresponding to said specific port" as recited in claim 9.

The above noted deficiencies of Chambliss are not supplied by any of the other references of record, namely Donze, whether taken individually or in combination with each other. Therefore, combining the teachings of Chambliss and Donze in the manner suggested by the Examiner still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

As previously discussed, Donze teaches a software application domain and storage domain stitching process and method. However, there is no teaching or suggestion in Donze of the machine readable medium tangibly embodying at least one sequence of instruction for calculating load data in an information processing system as recited in claim 9 of the present invention.

One feature of the present invention, as recited in claim 9, includes where the sequence of instruction causes the management host to calculate the estimated amount of data by using a current amount of data of the application having an approximate current amount of data, in case there is no current amount of data available to the application whose estimated amount of data needs to be calculated. As previously discussed, Donze does not disclose this feature.

Another feature of the present invention, as recited in claim Donze, includes

where the sequence of instruction causes the management host to output a combination of available ports and array groups, in case the information processing apparatus accesses, via a specific port, the virtual area provided by an array group corresponding to the specific port. As previously discussed, Donze does not disclose this feature.

Therefore, Donze fails to teach or suggest “calculate the estimated amount of data by using a current amount of data of said application having an approximate current amount of data, in case there is no current amount of data available to said application whose estimated amount of data needs to be calculated” as recited in claim 9.

Furthermore, Donze fails to teach or suggest “output a combination of available ports and array groups, in case said information processing apparatus accesses, via a specific port, said virtual area provided by an array group corresponding to said specific port” as recited in claim 9.

The above noted deficiencies of Chambliss in view of Donze are not supplied by any of the other references of record, namely Sekijima, whether taken individually or in combination with each other. Therefore, combining the teachings of Chambliss, Donze and Sekijima in the manner suggested by the Examiner still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

As previously discussed, Sekijima teaches a service processing apparatus and a service execution control method. However, there is no teaching or suggestion in Sekijima of the machine readable medium tangibly embodying at least one sequence of instruction for calculating load data in an information processing system as recited in claim 9 of the present invention.

One feature of the present invention, as recited in claim 9, includes where the sequence of instruction causes the management host to calculate the estimated amount of data by using a current amount of data of the application having an approximate current amount of data, in case there is no current amount of data available to the application whose estimated amount of data needs to be calculated. As previously discussed, Sekijima does not disclose this feature.

Another feature of the present invention, as recited in claim Sekijima, includes where the sequence of instruction causes the management host to output a combination of available ports and array groups, in case the information processing apparatus accesses, via a specific port, the virtual area provided by an array group corresponding to the specific port. As previously discussed, Sekijima does not disclose this feature.

Therefore, Sekijima fails to teach or suggest “calculate the estimated amount of data by using a current amount of data of said application having an approximate current amount of data, in case there is no current amount of data available to said application whose estimated amount of data needs to be calculated” as recited in claim 9.

Furthermore, Sekijima fails to teach or suggest “output a combination of available ports and array groups, in case said information processing apparatus accesses, via a specific port, said virtual area provided by an array group corresponding to said specific port” as recited in claim 9.

Each of Chambliss, Donze and Sekijima suffer from the same deficiencies, relative to the features of the present invention, as recited in the claims. Therefore, combining the teachings of Chambliss, Donze and Sekijima in the manner suggested by the Examiner does not render obvious the features of the

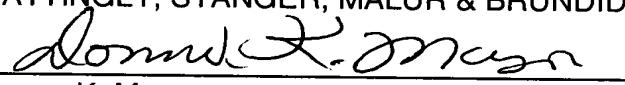
present invention as now more clearly recited in the claims. Accordingly, reconsideration and withdrawal of the 35 U.S.C. §103(a) rejection of claims 1 and 4-10 as being unpatentable over Chambliss in view of Donze, and further in view of Sekijima are respectfully requested.

The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to the references used in the rejection of claims 1 and 4-10.

In view of the foregoing amendments and remarks, Applicants submit that claims 1 and 4-10 are in condition for allowance. Accordingly, early allowance of claims 1 and 4-10 is respectfully requested.

To the extent necessary, Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of Mattingly, Stanger, Malur & Brundidge, P.C., Deposit Account No. 50-1417 (referencing Attorney Docket No. 1213.43685X00).

Respectfully submitted,
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